Weeping Spruce—The. Thomas H. Douglas (Gard. and For. v. 591). With illustration of *Picea Breweriana.*

Wistaria Sinensis—The. Anatomy of the Stem of. Carlton C. Curtiss (Journ. N. Y. Micros. Soc. viii. 79–89; three plates. Reprinted as Contrib. Herb. Col. Coll. No. 28).

Mr. Curtiss describes at length the anatomy of the stem of this vine, with especial reference to the secondary layers of bast which are formed in the growth of old stems at intervals of several years and become covered by the succeeding layers of wood. The material which called especial attention to these studies was received some time ago from Mr. B. Heritage, of Mickleton, N. J.

Reviews of Foreign Literature.

Fossil Plants as Tests of Climate. A. C. Seward. (Pamph. 8vo., pp. 151; Cambridge Univ. Press, London, 1892. New York, Macmillan & Co.) This is the Sedgwick prize essay for the year 1892, and in it the author has endeavored "to consider plants as the thermometers of the past," in which effort he has succeeded in bringing together practically all important references by botanical and geological writers on the subject. Plants in spite of their meagre palæontological remains, as compared with animals, have always been considered as the more trustworthy indices of climatal changes, as they are unable to migrate with the same ease as animals in the event of a change in temperature. They must either perish entirely or else gradually adapt themselves to the changed environment.

An introduction and historical sketch precedes the subject matter proper, after which follow chapters on plant distribution, Arctic vegetation, influence of external conditions upon the macroscopic and microscopic structures of plants, annual rings in recent and fossil plants, Arctic fossil plants, Carboniferous Period, Pleistocene plants and concluding remarks.

The principal question to be solved has always been whether the evidence warranted the assumption of a uniform climate throughout the world in past geological ages or whether there were temperature zones as we recognize them to-day. The general broad view of the subject undoubtedly indicates a uniform tem-

perature until as late as Tertiary times, but several minor facts have recently received attention which would seem to qualify any such general conclusion. The geologists, for instance, insist upon the evidence of the existence of an ice age during the Carboniferous Period, and the present distribution of our alpine and boreal plants prove to be a stumbling block every now and then to those who think that they have reached definite conclusions in regard to plant life and the conditions surrounding it just prior to the Glacial Epoch. In regard to this latter part of the subject—plant distribution—the botanist, has something to learn from the geologist and vice versa, and several errors might have been spared each had they recognized this fact. The subject is one which has received more or less attention lately, and is sure to receive consideration for some time to come, and we earnestly commend some of the references here given to the careful consideration of all who are interested in such discussion.

As a useful compend of diverse views the work is invaluable, and the exhaustive bibliography which is appended will save future students an immense amount of labor. This wealth of reference is confusing, however, especially as the author contributes nothing new in the line of original investigations or conclusions, and the reader is inclined to lay down the work finally with the impression that there is a hopeless disagreement between authorities on the subject of past climatal conditions on the earth as evidenced by plant remains. A. H.

Ueeber Boehmische Kreidepflanzen. Hermann Engelhardt. (Naturforsch. Gesellsch. d. Osterlandes, Neue Folge, Band v. 86–118 Taf. I.)

This supplements in a pleasing manner Velenovsky's work in the same horizon, and adds not a little to our knowledge of the universal vegetation which flourished throughout the world in Cretaceous times. Many species identical with those from the Western Continent may be noted, and the author describes and figures as new *Sphaeroccites Laubei, Litsaea Bohemica, Callistemophyllum Bouderi, Sterculia* sp. (allied to *S. aperta,* Lesqx.) and *Pinus* sp. A. H.